PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	The impact of funding deadlines on personal workloads, stress and family relationships: a qualitative study of Australian researchers
AUTHORS	Herbert, Danielle; Coveney, John; Clarke, Philip; Graves, Nicholas; Barnett, Adrian

VERSION 1 - REVIEW

REVIEWER	Jennifer Shambrook St Jude Children's Research Hospital, USA
REVIEW RETURNED	02-Jan-2014

GENERAL COMMENTS	In the second paragraph of the introduction, the statement is made that the shorter application for NIH "...consequently reduced the burden on applicants." This is a point that is sometimes debated by NIH investigators. More information yields better informed reviewers who may not have the exact expertise needed for adequate peer review with less information. One can accurately state that the INTENT was to reduce the burden to applicants and peer reviewers, but it is unclear if this is the actual result. Please correct citation 15 to Shambrook JF rather than Shambrook JP. I enjoyed reading this manuscript.

REVIEWER	Fiona Wood New England Business School University of New England Australia
REVIEW RETURNED	10-Feb-2014

GENERAL COMMENTS	This article is essentially a plea to inject some humanity into the grants' submission process of an Australian medical research funding agency that continues to limit itself to a single annual grants' call. The timing of the call also coincides with the major school holiday period within Australia. A public explanation/justification as to why the agency restricts itself to one call is difficult to find and the restriction is at odds with numerous international examples where for a number of years applicants have had access to multiple calls and can schedule their workloads accordingly. The grants' peer review process is expected to be (Wood and Wessely 2003):

	• effective - supports the research intended by the program • efficient - in terms of time, money and moral energy • accountable - complies with the relevant statutory and regulatory requirements, due process in the reviewing and awarding of funds, the work proposed has indeed been carried out • responsive - policy makers can direct research effort and support emerging areas • rational - process is transparent and is seen to be reasonable • fair - equitable treatment of all applicants, ensures high levels of integrity • valid - measuring tools must also be valid and reliable This article's focus falls primarily within the 'efficient', 'rational' and 'fair' categories. Given that tradeoffs are inevitable in realizing all expectations regarding the peer review process the question is what constitutes a defensible/appropriate and workable balance for the NHMRC? In this regard the article is useful and should be considered in the context of the specific recommendation of the 2013 McKeon Strategic Review of Health and Medical Research that the competitive grant processes should be streamlined and aligned with other major granting agencies. However, it should be noted that as the focus is on process, the article offers no real insights regarding the more fundamental issue that: 'Australia has no agency awarding grants for ground-breaking, frontier research on the basis of excellence alone. Nor do we have one that realistically prioritises research addressing Australia's grand challenges' (Wood 2011). Context/background The article would be strengthened through more commentary on the number of applications to the NHMRC and associated success rates and how these fit with international trends. Documented concerns from high profile professionals within the research community would also be helpful (cf Hilmer 2013 and Nicholson 2013). The 2010 Science magazine editorial by Bruce Alberts Overbuilding Research Capacity also contains some useful comparative information on success rates and research career issues for the article. A brief description of 'managed' and 'responsive' mode funding in research councils such as that provided by the ESF (2011) would be useful. 'Managed' mode having a specified date for its opening and the 'responsive' mode where the call is continuously open. In this regard Box 1 could replace 'ongoing' to 'continuously open' or something equivalent. Methodology The methodology needs greater explanation. It is unclear precisely who was targeted in the survey and what grants' submission experience they needed to have to be considered eligible to provide feedback for the survey. The number of respondents is very small and claims about 'representativeness' not really valid. Nonetheless, the responses provided are clearly indicative of genuine concerns and stresses held by some within the research community and warrant attention, particularly in view of the McKeon report recommendations. Given the small numbers of respondents the location and Go8 information is not really that helpful. It might be more useful to cite

	comments in terms of the respondent career stage (to some extent indicated by appointment level) and whether or not the respondent has been a recipient of an NHMRC grant. Table 1 needs to be reconsidered in this light. Also it is not clear why there is a breakdown in this table to differentiate between 'all researchers' and 'researchers providing comments'. Other The authors could consider whether pre-proposals such as used by the French National Research agency and limited to 5 pages might be an effective way of reducing both reviewer and applicant stress. I'd encourage revising the title of the article to make clear that the results reported are from a small-scale inquiry. The writing style needs to be tightened and the 'Work-home conflict' section page 18 needs far more explanation as to the relevance of the US survey. It would also be worthwhile considering more explicitly potential stress issues for the NHMRC's staff in being restricted to one grants' call. The thematic categories need to be sharpened so that their meaning is immediately clear – eg 'top priority' and 'career progress' and 'benefits' Why are there quotes around 'ask the researcher' – it looks somewhat clumsy. The abstract and conclusions needs to be recast in view of the above comments. Refs: Alberts, Bruce (2010) Editorial. Overbuilding Research Capacity. Science vol 329 p 1257. European Science Foundation, European Peer Review Guide, March 2011. Fred Hilmer, Don't give up the research funding fight, The Australian, November 20, 2013. Larissa Nicholson, ' Scientists stress need for overhaul of Science funding', The Canberra Times, 19 December 2013. Fiona Wood, 'ERA: an ailing emperor's new clothes', Australian R&D Review Feb-Mar: 12-13. Invited Op Ed. 2011. Fiona Wood and Simon Wessely, 2003, Peer Review of Grant Applications, in Peer Review in Health Sciences, 2nd Edition, F. Godlee, & T. Jefferson (eds) British Medical Association Publications, pp. 14-44.

VERSION 1 – AUTHOR RESPONSE

Reviewer 1: Jennifer Shambrook
St Jude Children's Research Hospital, USA

Comment

In the second paragraph of the introduction, the statement is made that the shorter application for NIH "...consequently reduced the burden on applicants." This is a point that is sometimes debated by NIH investigators. More information yields better informed reviewers who may not have the exact expertise needed for adequate peer review with less information. One can accurately state that the INTENT was to reduce the burden to applicants and peer reviewers, but it is unclear if this is the actual result.

Please correct citation 15 to Shambrook JF rather than Shambrook JP.
I enjoyed reading this manuscript.

¬ Response

We agree with the reviewer that it is difficult to measure a reduced burden on applicants. The statement has been revised in the Introduction to:
The US National Institute of Health (NIH) shortened their applications with the intention to reduce the burden on the administration, peer reviewers and applicants.

We have corrected the citation 15 to Shambrook JF (now citation 20).

Reviewer 2: Fiona Wood
New England Business School, University of New England, Australia

Comment

This article is essentially a plea to inject some humanity into the grants' submission process of an Australian medical research funding agency that continues to limit itself to a single annual grants' call. The timing of the call also coincides with the major school holiday period within Australia.

A public explanation/justification as to why the agency restricts itself to one call is difficult to find and the restriction is at odds with numerous international examples where for a number of years applicants have had access to multiple calls and can schedule their workloads accordingly.

The grants' peer review process is expected to be (Wood and Wessely 2003):
• effective - supports the research intended by the program
• efficient - in terms of time, money and moral energy
• accountable - complies with the relevant statutory and regulatory requirements, due process in the reviewing and awarding of funds, the work proposed has indeed been carried out
• responsive - policy makers can direct research effort and support emerging areas
• rational - process is transparent and is seen to be reasonable
• fair - equitable treatment of all applicants, ensures high levels of integrity
• valid - measuring tools must also be valid and reliable

This article's focus falls primarily within the 'efficient', 'rational' and 'fair' categories. Given that tradeoffs are inevitable in realizing all expectations regarding the peer review process the question is what constitutes a defensible/appropriate and workable balance for the NHMRC? In this regard the

article is useful and should be considered in the context of the specific recommendation of the 2013 McKeon Strategic Review of Health and Medical Research that the competitive grant processes should be streamlined and aligned with other major granting agencies.

However, it should be noted that as the focus is on process, the article offers no real insights regarding the more fundamental issue that: 'Australia has no agency awarding grants for ground-breaking, frontier research on the basis of excellence alone. Nor do we have one that realistically prioritises research addressing Australia's grand challenges' (Wood 2011).

Context/background
The article would be strengthened through more commentary on the number of applications to the NHMRC and associated success rates and how these fit with international trends. Documented concerns from high profile professionals within the research community would also be helpful (cf Hilmer 2013 and Nicholson 2013). The 2010 Science magazine editorial by Bruce Alberts Overbuilding Research Capacity also contains some useful comparative information on success rates and research career issues for the article.

¬ Response

The number of proposals submitted in 2012 (3727 proposals) is stated in the third paragraph of the Introduction, and the number of proposals submitted in 2013 (3916 proposals) is stated at the start of the Methods section. The success rates for 2012 (21%) and 2013 (17%) have been added to the number of proposals.

The Introduction has been revised to include:
Alberts (2010) stated the reliance in the US on NIH funding to expand research capacity is unsustainable when the success rates can be below 10%[1]. The pattern is similar in Australia as the number of proposals submitted to the NHMRC is rising steadily and the success rate declined to 17% in 2013 [2, 3]. If this pattern continues the prediction is that more than 5000 proposals may be submitted to the major NHMRC funding scheme in 2017 [4]. International agencies have implemented initiatives to reduce the total number of proposals being submitted by barring unsuccessful applications from previous years [4, 5].

Comment

A brief description of 'managed' and 'responsive' mode funding in research councils such as that provided by the ESF (2011) would be useful. 'Managed' mode having a specified date for its opening and the 'responsive' mode where the call is continuously open. In this regard Box 1 could replace 'ongoing' to 'continuously open' or something equivalent.

¬ Response

Box 1 has been revised to change 'ongoing' to 'continuously open', and the Introduction has been revised to include:
The European Science Foundation makes the distinction between funding schemes that are either 'managed' by setting timelines and deadlines for each funding cycle, or are 'responsive' to the receipt of proposals for funding cycles that are continuously open [6].
The NHMRC major funding scheme is 'managed' for a single deadline [2] and differs from comparable international funding schemes where multiple deadlines are available or schemes are continuously open, e.g., Canada [7], UK [8, 9] and USA [10, 11] (Box 1). Funding schemes are expected to be efficient, fair and rational [12], however the impact of a single submission deadline has not previously been examined.

Comment

Methodology
The methodology needs greater explanation. It is unclear precisely who was targeted in the survey and what grants' submission experience they needed to have to be considered eligible to provide feedback for the survey.

¬ Response

The recruitment of participants focussed on any researcher who had experience of applying for NHMRC Project Grants. The funding rules for this scheme require each Chief Investigator to hold an affiliation with an academic institution. A small number of the participants (n=14) did not hold an academic position and were excluded from the analysis. This exclusion is stated in the methodology under the subheading Qualitative Analysis:
…not holding an academic position (n=12); or being a PhD student (n=2).

The criterion for participation was the preparation of a proposal, not the successful awarding of funding. Researchers may have had the prior experience of preparing and submitting a proposal but have yet to win funding. This prior experience may have been gained in the most recent funding round or the previous year(s) of funding rounds.

The methodology has been revised to include:
The target group was researchers with the experience of applying for a NHMRC Project Grant either in 2013 or previous funding rounds.

Comment

The number of respondents is very small and claims about 'representativeness' not really valid. Nonetheless, the responses provided are clearly indicative of genuine concerns and stresses held by some within the research community and warrant attention, particularly in view of the McKeon report recommendations.

Given the small numbers of respondents the location and Go8 information is not really that helpful. It might be more useful to cite comments in terms of the respondent career stage (to some extent indicated by appointment level) and whether or not the respondent has been a recipient of an NHMRC grant. Table 1 needs to be reconsidered in this light. Also it is not clear why there is a breakdown in this table to differentiate between 'all researchers' and 'researchers providing comments'.

¬ Response

Under 'Strengths and Limitations' we have stated:
Researchers responding to the survey may not be representative of the complete population of researchers, however they did report a history of successfully gaining funding.

Representativeness is not something that is restricted to large samples, and although our sample was not large for a quantitative analysis, it did generally match the Australian research community in their experience of applying for funding. We believe the sample of 215 participants is sufficient and representative for the purposes of this qualitative analysis.

We believe the Go8 information is relevant because the Go8 universities receive the majority of

research funding in Australia. Further, there is a perception among Australian researchers that the Go8 applications are treated differently to non-Go8 applications at peer review.

We agree that the characteristics of the sample of researchers and those providing comments are very similar. We have revised Table 1 to focus on the total sample and deleted the second column for those providing comments.

Comment

The authors could consider whether pre-proposals such as used by the French National Research agency and limited to 5 pages might be an effective way of reducing both reviewer and applicant stress.

¬ Response

The use of an expression of interest (EOI) is a potential solution to reducing applicant burden that has been discussed elsewhere. The aim of this paper is the most recent experience of researchers when they applied for the existing system.

Comment

I'd encourage revising the title of the article to make clear that the results reported are from a small-scale inquiry.

¬ Response

From a quantitative point of view, our sample size of 215 participants is large enough to give us a good margin of error. For example, for a question with a 50% positive response our standard error of the mean is 3.4%. This is especially good considering that a 50% response has the highest variance. For a question with a positive response of 10% or 90% we have a standard error of 2.0%. We are confident that our relatively small sample is providing results that are close to the true population values.

From a qualitative point of view, our sample of 215 participants is more than sufficient for our analysis to identify the key themes from the comments. Our preference is to keep the title unchanged. The reader can check the abstract to identify the size of the sample without adding extra detail to the title.

Comment

The writing style needs to be tightened and the 'Work-home conflict' section page 18 needs far more explanation as to the relevance of the US survey. It would also be worthwhile considering more explicitly potential stress issues for the NHMRC's staff in being restricted to one grants' call.

¬ Response

The relevance of the US survey has been added to the 'Work-home conflict' section:
Although Shambrook (2012) focussed specifically on research administrators and not the academic researchers, the findings highlight that the personal costs of applying for funding spreads beyond the lead investigators.

The target group for this study is the applicant, not the NHMRC staff. The established process at the NHMRC is a single submission deadline for the Project Grant funding scheme. The impact of the

single call on the NHMRC staff is beyond the scope of this study but may be examined by future research.

Comment

The thematic categories need to be sharpened so that their meaning is immediately clear – eg ‘top priority’ and ‘career progress’ and ‘benefits’

¬ Response

The categories have been revised to ensure the meaning is clearer for the reader. The text and subheadings have been edited according to the revised themes.

For work–life, the six major themes have been reviewed and revised to:
1) top priority; 2) career development; 3) stress at work; 4) benefits at work; 5) time spent at work; and 6) pressure from colleagues.

For home–life, the six major themes have been reviewed and revised to:
1) restricting family holidays; 2) time spent on work at home; 3) impact on children; 4) stress at home; 5) impact on family and friends; and 6) impact on partner.

Comment

Why are there quotes around ‘ask the researcher’ – it looks somewhat clumsy.

¬ Response

The quotes have been deleted.

Comment

The abstract and conclusions needs to be recast in view of the above comments.

¬ Response

We have revised the manuscript, abstract and conclusions accordingly.

Thank you for the opportunity to revise our manuscript.

References

1. Alberts, B., Overbuilding Research Capacity. Science, 2010. 329(5997): 1257.
2. National Health and Medical Research Council, Research funding facts book 2012, 2013, NHMRC: Canberra. Available from http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/nh161_nhmrc_funding_facts_book_130809.pdf
3. National Health and Medical Research Council, Funding Rate and Funding by Funding Scheme, 2013, NHMRC: Canberra. Available from http://www.nhmrc.gov.au/grants/outcomes-funding-rounds
4. Barnett, A.G., D.L. Herbert, P. Clarke, and N. Graves, The research lottery: the pressures on the Australian grant system. AQ: Australian Quarterly, 2014. 85(1): 4-9.
5. Van Noorden, R. and G. Brumfiel, Fixing a grant system in crisis. Nature, 2010. 464(7288): 474-475.

6. European Science Foundation, European peer review guide: integrating policies and practices into coherent procedures, 2011.
7. Canadian Institutes of Health Research, Designing for the Future: The New Open Suite of Programs and Peer Review Process, 2013, CIHR: Ontario http://www.cihr-irsc.gc.ca/e/documents/or_des_for_future-en.pdf
8. Engineering and Physical Sciences Research Council, Funding Guide. Arrangements and procedures for research grants and research fellowships, 2013, EPSRC http://www.epsrc.ac.uk/SiteCollectionDocuments/FundingGuide.pdf
9. Medical Research Council, Handbook for Applicants and Grant Holders 2013, 2013, MRC London http://www.mrc.ac.uk/Fundingopportunities/
10. National Institutes of Health, SF424 (R&R) Application Guide for NIH and Other PHS Agencies, 2013, NIH: http://grants.nih.gov/Grants/funding/424/SF424_RR_Guide_General_Adobe_VerB.pdf
11. National Science Foundation, Grant proposal guide, 2011. p. I-3 Available from http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/gpgprint.pdf
12. Wood, F. and S. Wessely, Peer Review of Grant Applications, in Peer Review in Health Sciences, F.G.T. Jefferson, Editor 2003, British Medical Association Publications: London. p14-44.

VERSION 2 – REVIEW

REVIEWER	Fiona Wood New England Business School, University of New England, Australia
REVIEW RETURNED	24-Feb-2014

GENERAL COMMENTS	Reference 4 - note format error and typo in title (P22)